

Mode IA Tout Images Shopping Vidéos Maps Vidéos courtes Plus ▾ Outils ▾

◆ Aperçu généré par IA

The **four-color theorem** states that any two-dimensional map can be colored using a maximum of four colors without any two adjacent regions sharing the same color. "Adjacent" means regions share a border segment longer than a single point. It is one of the most famous problems in graph theory. [Wikipedia](#) +3



Key Concepts and Rules

- **No Five Colors Required:** No matter how complex a planar map is, you never need a fifth color. [TikTok · onlinekyne](#)
- **Border Definition:** Adjacent regions only require different colors if they share a continuous border (e.g., US states). If they only touch at a corner (like the "Four Corners" monument in the US), they can share the same color. [Wikipedia](#) +3
- **The Graph Connection:** The map is often translated into a network (or planar graph) where countries are "vertices" (nodes) and shared borders are "edges" (lines). The goal is to color the nodes so that no connected nodes have the same color. [GeeksforGeeks](#) +1

History and Proof

- **The Origin:** The puzzle was first proposed in 1852 by Francis Guthrie while trying to color a map of the counties in England. He noticed that four colors seemed to do the job for any map he tried. [YouTube · Quanta Magaz...](#) +1
- **The First Computer Proof:** For over a century, mathematicians attempted to find an elegant, hand-written proof, but several early attempts failed. It wasn't until 1976 that mathematicians **Kenneth Appel** and **Wolfgang Haken** at the University of Illinois finally proved the theorem. [YouTube · Quanta Magaz...](#) +1

... A New Era of Mathematics: Their proof was highly controversial at the time because



traditional logic, which sparked debates about what constitutes a valid "proof". [Wikipedia](#) +2

If you want, I can:

- Provide some **real-world examples** that actually need all four colors.
- Explain the basics of **planar graphs** and how maps are translated into math.
- Tell you how the proof is checked by **modern algorithms**.

Let me know what you'd like to **dive into next**.



+



Four color theorem

• Traduire cette page

Formulation

History

Summary of proof ideas

True disproofs



The Four Colour Theorem

Traduire cette page

1 févr. 2011 — The conjecture that **any map could be coloured using only four colours** first appeared in a letter from Augustus De Morgan (1806-1871), first ...



Chapter 11: The Form Column Deck PDF

 Mathworld Wolfram

Four-Color Theorem -- from Wolfram MathWorld

Traduire cette page

par EW Weisstein · 2002 · Cité par 22 — The four-color theorem states that **any map in a plane can be colored using four-colors** in such a way that regions sharing a common boundary (other than a ...



The Four Color Theorem

PDF ⋮

12 mai 2020 — This paper will take examine the mathematical theorem known as the **Four Color** Theorem. We will begin by outlining hate history of the ...

7 pages



Four color theorem

• Traduire cette page

It says that in any plane surface with regions in it (people think of them as **maps**), the regions can be colored with no more than **four colors**. Two regions that ...

 **Reddit · r/mathematics**
Plus de 240 commentaires · il y a 1 an

Does this break the 4 color theorem or am I stupid

The **Four Color** Theorem states that no matter what this **map** looks like it will require at most **4 colors** to fill in.

[ELI5: How does the 4-color theorem "work"? : r ...](#) 19 messages 11 oct. 2018
[Is there an analog of the Four Color Theorem in 3 ...](#) 18 messages 5 févr. 2022
[Autres résultats pour www.reddit.com](#)

 **Georgia Institute of Technology**
<https://thomas.math.gatech.edu> > f...

The Four Color Theorem · Traduire cette page ⋮

The **Four Color** Problem dates back to 1852 when Francis Guthrie, while trying to color the **map** of counties of England noticed that **four colors** sufficed.

- History.
- Outline of the proof.
- Main features of our proof.
- Configurations.

Courtes vidéos ⋮ ^



- 0:44

Four Colour Theorem: An interesting...

 YouTube · MrGe... ⋮
- 0:51

Understanding the Four Colour Theore...

 TikTok · onlinekyne ⋮
- 1:33

The four color map theorem!

 YouTube · Dexter... ⋮
- 0:24

The Four Color Theorem

 YouTube · BriThe... ⋮

Plus de courtes vidéos >

1 2 3 4 5 6 7 8 9 10 Suivant

Les résultats sont personnalisés - [Essayer sans personnalisation](#)

Canada **H3T 1E8, Montréal, QC** - [D'après vos adresses \(maison\)](#) - [Mettre à jour ma position](#)

[Aide](#) [Envoyer des commentaires](#) [Confidentialité](#) [Conditions d'utilisation](#)